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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/771,816

02/04/2004

Masaru Murashita

29A 3539

3963

7590 11/16/2007
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EXAMINER

KHOLDEBARIN, IMAN K

ART UNIT

PAPER NUMBER

3737

MAIL DATE

DELIVERY MODE

11/16/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/771,816

Applicant(s)

MURASHITA ET AL.

Examiner

I Kenneth Kholdebarin

Art Unit

3737

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Aug/08/2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed August 30, 2007 have been fully considered but they are not persuasive.

2. After further consideration of the applicant's argument, examiner respectfully disagrees. In regards to applicant's remarks on page 1, applicant argues that Pieper et al. does not disclose "any elements corresponding to the reference cross section setter or the basic cross section selector".

Examiner would like to further clarify that Pieper teaches, in addition, using well established mathematical techniques, at any point along the spline paths, a tangent vector and a perpendicular plane can be readily determined either by direct calculation or by definition in those cases where direct calculation would be undefined. By calculating the distance from the spline path to the points in the volumetric data set corresponding to the vessel branch region that are within an epsilon distance of the perpendicular plane, the shape of the vessel at that point can be determined, and the radius of a circle that best fits the cross-sectional area of the vessel at that point can also be readily calculated. Again, this result can be used to help determine that desired graft shape. In FIG. 23 which is a flow chart Pieper illustrating how patient-specific anatomical dimensions can be determined from scanned 2-D data in accordance with the present invention in order to fit the organ within the selected frame.

In addition to the foregoing, it is possible to use the centerline derived above to generate additional views for the observer, and/or to make further anatomical calculations and measurements.

In view of examiner using centerline and perpendicular plane and tangent vector to make further anatomical calculation and measurement is sufficient reason to make it obvious to one ordinary skill in the art at the time of the invention was made that a reference cross section setter and cross section selector could be use to fit the organ in the frame in order to help determine that desired graft shape. Therefore, the examiner maintains previous rejection dated June 04, 2007 and repeated below.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pieper (US 5,825,908).

Applicants are introducing automating the selection of 'standard echocardiographic views' using a process that segments out the four heart chambers, identifies them, picks and standardizes the apical axis direction and the short axis perpendicular and 'page flips' through possible correct cut planes around these axes in order to find the defined maximum area view as the classical definition, either in terms of area or a diameter. An intercostal surface scanner or a

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transesophageal probe may produce such views. A basic setter; a reference cross section setter a sectional image former; center of mass of the target and rotation to set the planes formed in each rotational angle position as the plurality of reference cross section are the elements introduced in the claimed ultrasonic diagnostic apparatus.

Piper discloses a system and a method for determining a dimension of an anatomical structure using an appropriate set of 2-D slice images obtained by scanning an anatomical structure, system comprising: for assembling a set of scanned 2-D slice images into a 3-D data; (Col. 1, line 62- col. 2 line 21) for extracting an anatomical feature from the information contained in 3-D data and further to specifying a measurement to be made based on extracted anatomical feature.

Piper further discloses to calculate the measurement wherein anatomical feature is the centerline of anatomical structure, (See Col. 3 line 65- Col.4 line 6).

In another embodiment of the invention, the system comprises a first database which comprises a plurality of 2-D slice images generated by scanning an anatomical structure. These 2-D slice images are stored in a first data format. A second database is also provided which comprises a 3-D computer model of the scanned anatomical structure. This 3-D computer model comprises a first software object which is representative of the scanned anatomical structure and which is defined by a 3-D geometry database. In this second embodiment of the invention, means are also provided for inserting a second software object into the 3-D computer model so as to augment

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the 3-D computer model. The second software object is also defined by a 3-D geometry database, and includes a planar surface. Furthermore, means are also provided for determining the specific 2-D slice image which corresponds to the position of the planar surface of the second software object which has been inserted into the augmented 3-D computer model, (See Col. 5, line 16-34).

Piper introduces the measurement of anatomical feature centerline wherein the system further comprises a cumulative sum table derived from centerline to calculate and determines a length measurement.

Piper teaches in Fig. 11, Fig. 12 and 13, 2D slice image and 3D image of the same organ and the axial slices used as a method of obtaining images. Piper further teaches that for example, scanning devices of the sort described above might be used to look for stenosis in a blood vessel, or the buildup of plaque in a blood vessel, or a thinning of the aorta wall. (See Col. 1, line 40-45) Piper does not teach imaging of the heart, however it would have been obvious to one ordinary skill in the art at the time of the invention was made to have an apparatus and process thought by Piper in order to scan and obtain ultrasound images and further to determine the location and size of the subject under examination based on the cut planes around the axes of any organ of interest including the heart.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to I Kenneth Kholdebarin whose telephone number is 571-270-1347. The examiner can normally be reached on M-F 8 AM- 4 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

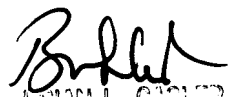
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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

IKK

Iman Kenneth Kholdebarin

11/12/2007


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